

### **REMARKS**

Claims 1-7, 9, 12-18 and 20 are now pending in the application. Claims 1-20 stand rejected. Claims 8, 10, 11 and 19 have been cancelled herein, and Claims 1, 3, 5, 9 and 16 have been amended. Support for the amendments can be found throughout the application, drawings and claims as originally filed and, as such, no new matter has been presented. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **DRAWINGS**

The undersigned gratefully acknowledges the Examiner's acceptance of the drawings filed on November 13, 2003.

### **REJECTION UNDER 35 U.S.C. § 112**

Claim 3 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended Claim 3 to overcome this rejection. Reconsideration and withdrawal of this rejection is respectfully requested.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1, 3, 4, 9 and 14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Fredette (U.S. Pat. No. 6,991,864; hereinafter "Fredette"). This rejection is respectfully traversed.

Initially, Applicants note that Fredette discloses a fuel cell stack that utilizes a storage control 200 to extract energy created during start-up and shutdown of the fuel cell stack and to transfer the energy to an energy storage system 201. The energy storage system 201 stores the energy for use to power the electric vehicle. In addition, the energy storage system 201 receives energy from the vehicle propulsion system 159 through regenerative braking. Fredette further discloses that it is an object of his invention to eliminate the need for the application of a resistive load to the fuel cell stack during shutdown, and the need for purging the fuel cell stack during shutdown. In contrast, independent Claim 1 has been amended to recite:

a blower to supply air to the fuel cell stack **to purge the fuel cell stack**;  
a motor for powering the blower; and  
wherein the motor is coupled to the energy storage device for receipt of electrical energy to power the motor (emphasis added).

In addition, independent Claim 9 has been amended to recite:

using the stored electrical energy to power a motor coupled to a compressor to facilitate the start-up of the compressor;  
using the compressor to supply an oxidant to the fuel cell stack; and  
**purging the fuel cell stack with air after storing the energy** (emphasis added).

In view of the above discussion, Applicants note that Fredette does not teach, suggest or disclose each and every element of Applicants' Claims 1 and 9. In this regard, Fredette does not teach, suggest or disclose powering a motor coupled to a compressor or a blower by an energy storage device that receives energy from the shut-down of a fuel cell stack, in which the compressor supplies an oxidant to the fuel cell stack and the blower supplies a purge gas to the fuel cell stack during shutdown.

Rather, Fredette discloses using the stored energy to power an electric vehicle. In addition, Fredette teaches away from using a purge gas to purge the fuel cell stack during shutdown. Accordingly, as Fredette does not teach, suggest or disclose each and every element of Applicants' Claims 1 and 9, Applicants respectfully request the Examiner reconsider and withdraw the rejection of Claims 1 and 9 under 35 U.S.C. §102(e).

With regard to Claims 3, 4 and 14, Applicants note these claims depend either directly or indirectly from independent Claims 1 or 9, and, thus, these claims should be in condition for allowance for the reasons set forth for Claims 1 and 9 above. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of Claims 3, 4 and 14 under 35 U.S.C. §102(e).

#### **REJECTION UNDER 35 U.S.C. § 103**

Claims 2, 7, 10, 16 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredette in view of Reiser et al. (U.S. Pat. No. 6,858,336; hereinafter "Reiser"). Claims 5, 8, 11, 13 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredette in view of Stühler et al. (U.S. Pat. No. 6,612,385; hereinafter "Stühler"). These rejections are respectfully traversed.

Applicants refer the Examiner to the remarks regarding Claims 1 and 9 for a discussion of the Fredette reference. Applicants also note that Claim 1 has been amended to include the features of Claim 8, and Claim 9 has been amended to include the features of Claims 10 and 11. Regarding the Reiser reference, Applicants note that Reiser discloses a procedure for shutting down a fuel cell stack in which an auxiliary

load is applied to the fuel cell stack for a period of time before a purge gas is blown through the fuel cell stack. With regard to the Stühler reference, Applicants note that Stühler discloses using a starter battery 5 to supply power to a compressor 2 during start-up of the fuel cell system. The starter battery 5 is a basic battery that is coupled to the fuel cell system and can have an output of 24V or 48V. Stühler does not disclose whatsoever charging a battery with energy created during the shutdown of a fuel cell stack. In contrast, independent Claim 1 has been amended to recite:

a blower to supply air to the fuel cell stack **to purge the fuel cell stack**;  
a motor for powering the blower; and  
wherein the motor is coupled to the energy storage device for receipt of electrical energy to power the motor (emphasis added).

Further, independent Claim 9 has been amended to recite:

**using the stored electrical energy to power a motor coupled to a compressor to facilitate the start-up of the compressor**;  
using the compressor to supply an oxidant to the fuel cell stack; and  
**purging the fuel cell stack with air** after storing the energy (emphasis added).

In addition, Claim 16 has been amended to recite:

**using the stored electrical energy to power a purge system** in communication with the fuel cell stack;  
**introducing air into the fuel cell stack** from the purge system **to purge the fuel cell stack** (emphasis added).

In view of the above discussion, it is improper to modify Fredette with either Reiser or Stühler to arrive at Applicants' Claims 1, 9 and 16. With particular regard to the combination of Fredette with Reiser, Applicants note it is improper to combine

Fredette with Reiser as Fredette teaches away from the use of a purge gas during shut down, as taught by Reiser. Specifically:

It is established that where references, instead of suggesting the invention, **seek or warn to avoid the suggestion**, such references diverge from and teach away from the invention at hand and it is error to find obviousness based on such references.

In re Fine, 837 F.2d 1071, 1074, 5USPQ2d 1596, 1599 (Fed. Cir. 1988) (emphasis added). Fredette teaches the use of a battery for powering an electric vehicle and teaches that it is an object of his invention to eliminate the need to purge the fuel cell stack on shutdown with a purge gas. Fredette further teaches that the use of a purge gas can cause undesirably large voltage excursions in the fuel cell stacks. Reiser, on the other hand, teaches the desirability of using a purge gas and an auxiliary load, in direct contrast to the teachings of Fredette. Thus, as Fredette teaches away from the use of a purge gas, one skilled in the art would not be motivated to combine the Fredette reference with the Reiser reference.

In view of the above, Applicants submit that the combination cited by the Examiner does not present a *prima facie* case of obviousness as there is no motivation or suggestion to make the Office's modification, and as such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of newly amended Claims 1, 9 and 16.

With regard to the combination of Fredette and Stühler as applied to Claims 8 and 11 now incorporated in Claims 1 and 9, respectively, Applicants note that to modify Fredette with Stühler would improperly modify the principle of operation of the battery and the electric vehicle of the Fredette reference. In particular, if the proposed

modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. ***In re Ratti***, 270 F.2d 810, 123 USPQ 349 (C.C.P.A. 1959) MPEP 2143.01. In the Fredette reference, the energy storage system stores energy from the shutdown process for use by an electric vehicle. Modifying the energy storage device for supplying power to a compressor would impermissibly modify the principle of operation of the energy storage system of the Fredette reference and is improper.

Additionally, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. ***In re Gordon***, 733 F.2d 900,221 USPQ 1125 (Fed. Cir. 1984) MPEP 2143.01. As the intended purpose of the energy storage system is to store energy for use by the electric vehicle, it is improper to modify the energy storage system of the Fredette reference for supplying power to a compressor.

Further, Applicants note that Fredette teaches that it is an object of his invention to eliminate the need for purging the fuel cell stack on shutdown. Thus, one of skill in the art would not be motivated to modify Fredette to include a purge system or purging the fuel cell stack, as Fredette teaches away from this modification.

Thus, in view of the above, Applicants submit that the combination cited by the Examiner does not present a *prima facie* case of obviousness as there is no motivation or suggestion to make the Office's modification, and as such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of newly amended Claims 1, 9 and 16.

Further, with regard to Claims 2, 5, 7, 8, 13, 15 and 20, Applicants note these claims depend either directly or indirectly from independent Claims 1, 9 or 16, and, thus, these claims should be in condition for allowance for the reasons set forth for Claims 1, 9 and 16 above. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of Claims 2, 5, 7, 8, 13, 15 and 20 under 35 U.S.C. §103(a).

Claims 6 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredette in view of Edlund et al. (U.S. Pat No. 6,811,908; hereinafter "Edlund"). Claims 17 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredette in view of Reiser et al. as applied to Claim 16 above, and further in view of Stühler et al. Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredette in view of Reiser et al. as applied to Claim 16 above, and further in view of Edlund et al. These rejections are respectfully traversed.

With regard to Claims 6, 12, 17 and 18, Applicants note these claims depend either directly or indirectly from independent Claims 1, 9 or 16, and, thus, these claims should be in condition for allowance for the reasons set forth for Claims 1, 9 and 16 above. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of Claims 6, 12, 17 and 18 under 35 U.S.C. §103(a).


## **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is

believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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